



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

SR-6J

February 17, 2012

VIA ELECTRONIC MAIL AND CERTIFIED MAIL

Weyerhaeuser Company
Attention: Richard Gay
810 Whittington Ave.
Hot Springs, AR 71902

Re: Plainwell Mill, Operable Unit #7, Allied Paper, Inc./Portage Creek/Kalamazoo River
Superfund Site -- Comments on Remedial Investigation Report

Dear Mr. Gay:

Pursuant to the Consent Decree for the Design and Implementation of Certain Response Actions at Operable Unit #4 and the Plainwell Inc. Mill Property of the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site (Site), Conestoga-Rovers & Associates, Inc. (CRA), Weyerhaeuser Company's (Weyerhaeuser) environmental consultant, submitted a Remedial Investigation (RI) Report on June 20, 2011 for Weyerhaeuser.

After reviewing your submittal, the United States Environmental Protection Agency (EPA) disapproves the RI Report and provides EPA and Michigan Department of Environmental Quality (MDEQ) comments in Enclosure 1. Comments on the Human Health Risk Assessment (HHRA) and Screening Level Ecological Risk Assessment (SLERA), and subsequent memorandum, dated November 9, 2011 were sent on November 23, 2011 and are not included in this document.

Per the Consent Decree, a revised RI Report that corrects all the deficiencies must be submitted within 30 days of receipt of this letter for review. If you have any questions or comments regarding this letter, please contact me at (312) 353-4150 or via email at desai.sheila@epa.gov.

Sincerely,

A handwritten signature in cursive script, appearing to read "Sheila Desai", is written over the typed name.

Sheila Desai
Remedial Project Manager

Enclosure: EPA and MDEQ Comments on RI Report

cc: J. Saric, U.S. EPA (e-mail)
L. Kirby-Miles, U.S. EPA (e-mail)
P. Bucholtz, MDEQ (e-mail)
G. Carli, CRA (e-mail)
M. Erickson, Arcadis (e-mail)
J. Lifka, SulTRAC (e-mail)

**COMMENTS ON REMEDIAL INVESTIGATION REPORT
PLAINWELL MILL SITE, OPERABLE UNIT 7 OF
ALLIED PAPER/PORTAGE CREEK/KALAMAZOO RIVER SITE
PLAINWELL, KALAMAZOO COUNTY, MICHIGAN**

February 17, 2012

The Remedial Investigation (RI) report is dated June 2011 and was prepared by Conestoga-Rovers & Associates, Inc. (CRA) for the Weyerhaeuser Company (Weyerhaeuser), the responsible party for the site, as required by the Consent Decree. Comments from U.S. Environmental Protection Agency (U.S. EPA) and Michigan Department of Environmental Quality (MDEQ) are presented below. The first complete paragraph on each page is identified as "Paragraph 1." An incomplete paragraph at the top of a page (one that carries over from the previous page) is identified as "Paragraph 0."

GENERAL COMMENTS

1. The RI report generally follows EPA guidance outlined in Guidance for *Conducting Remedial Investigations and Feasibility Studies Under CERCLA* (EPA 1988); however, the report does not include an executive summary. An executive summary should be included at the beginning of the report.
2. Given the numerous exceedances of screening criteria, site-specific soil and groundwater background sampling is necessary to evaluate the nature and extent of metals and inorganic contamination in soil and groundwater. The report alludes to possible need for collecting background samples but does not indicate when sample collection would occur. The report should be revised to discuss: (1) whether site characterization is considered complete or background sampling is needed to complete the RI phase of work, and (2) the impact of omitting site-specific background sampling.
3. The report must include language evaluating the adequacy of the existing groundwater monitoring network at the site. Although there is the potential for the site hydrologic conceptualization to change with the collection of additional potentiometric data, an

evaluation of the groundwater monitoring network is appropriate for inclusion in this document. Key questions such as “Is there adequate monitoring of the site groundwater where site groundwater crosses property lines? Is there a groundwater monitoring well or wells in the flow path downgradient from potential source areas? Is the groundwater monitoring network adequate to determine flow direction toward off-site areas? Groundwater should be addressed adequately.

4. Because discussions have occurred previously about proceeding with work within specific areas of the site on an accelerated schedule, the summary and conclusions section (Section 10) should discuss how the RI results may impact planned work at the Fannie Pell Bridge, coal tunnel, and public works building areas. After completion of Phase II RI field work, Weyerhaeuser and CRA proposed additional soil and groundwater sampling related to possible construction of the Fannie Pell Bridge (soil borings SB-2014 and SB-2015). Part of the rationale for proposing only two borings was that results would be available from samples collected at other nearby locations, as shown on Figure 2 of the Fannie Pell Bridge work plan. Analytical results for the nearby sampling locations cited in the work plan (SB-270, SB-271, SB-272, SB-279, SB-280, SB-284, and MW-16) indicate that some metals/inorganics and volatile organic compounds (VOC) in soil exceed their respective Michigan Part 201 levels within these areas. In addition, polychlorinated biphenyls (PCB) exceed Part 201 criteria in a shallow soil sample from boring MW-16. Soil and groundwater analytical results from samples collected at the two borings drilled as part of the Fannie Pell Bridge work (borings SB-2014 and SB-2015) should also be presented along with RI results for Area 2B, and the results from all three areas cited should be part of discussion regarding possible acceleration of work in these areas.
5. The former Mill Building contains asbestos containing material (ACM) not discussed in the RI or in the risk assessments. The report should be revised to include a discussion of how this material relates to the overall RI/FS process, and when and how it will be addressed.
6. Section 6.0 of the RI report should include a summary of the conclusions of (1) the “Data Quality Summary Reports” generated as required by Worksheet No. 33 of the Quality

Assurance Project Plan (QAPP) and (2) the “Usability Assessment” generated as required by Worksheet No. 37 of the QAPP. Particular attention should be paid to impact on the site characterization of the various analytical data qualifications (especially rejection of some analytical results) and the sample dilutions (and consequent raised detection limits).

SPECIFIC COMMENTS

1. **Pages 10, 11, 12.** The text discusses mixing RI and pre-RI data. The text should also discuss the data quality of the pre-RI data and whether reference to those data is for information purposes only or for use in decision making. The text should also refer to Figures 2.1 through 2.3 when referring to pre-RI data.
2. **Section 2.4.2, Page 20.** The text refers to “a portion of the Mill Race [which] is diverted to run beneath the former mill...” the location of this surface water and the elevation change within this surface water should be identified on the groundwater contour maps as the influence of this diverted water might contribute to a better understanding of groundwater flow in the northeastern portion of the site.
3. **Section 2.4.3, Page 21.** The report should explain that groundwater flow indicated on the groundwater contour maps (Figure 2.12 and 2.13) are “snapshots” and should not be assumed to be representative of typical groundwater flow at the site. The text should be revised to state that the difference in groundwater flow patterns shown on Figures 2.12 and 2.13 may be in part due to availability of additional data points in February 2010 (the Phase II RI monitoring wells). It appears, from the limited set of groundwater elevation data available, that the river (as well as the Mill Race) has a significant effect on groundwater flow directions at the site. This could result in significant temporal changes in groundwater flow direction at this site. The collection of additional monitoring well and staff gauge data at this site will be necessary to better understand this fundamental need.

The report should indicate that the groundwater contour maps indicate a need for improved coverage in Area 1 and Area 3A, particularly where site groundwater crosses property boundaries into the residential neighborhood and the properties to the west. In both areas, the

groundwater monitoring data is so sparse that the direction of groundwater flow is uncertain and highly subject to interpretation. Once the understanding of flow direction in offsite directions is improved and the quality of groundwater at those locations is determined, then any need to address potential contamination can then be assessed.

4. **Section 2.4.3, Page 21, Paragraphs 3 and 4.** The text discusses site hydrogeology. The text should discuss the relationship between groundwater and surface water elevations with respect to how changes in river stage may affect groundwater elevations, flow directions, and hydraulic gradients. Therefore, the conclusions and recommendations section of the report should discuss whether periodic (monthly or quarterly) groundwater and surface water elevation measurements are necessary to gain a better understanding of groundwater flow variability.
5. **Section 2.5, Pages 21 and 22.** The text discusses numerous wells and buildings in this section. The text should be revised to refer to a figure or figures showing the features discussed.
6. **Section 3.0.** The section includes subsections that state that contaminant migration trends and groundwater modeling may be conducted. The text should state when these will be conducted within the RI/FS process. In addition, Section 3.3 should be revised to discuss activities in the past tense if any of these evaluations have been completed per discussions in Section 5 or in the risk assessments.
7. **Section 4.1.3.** This section (as the title indicates) includes a “Summary of Contamination Removed.” This includes a brief description of past floodplain and sediment removals. This section should include a summary (with an attached figure) identifying the limits of excavation and material remaining, particularly as it pertains to sediment removal.
8. **Section 5.2.1.1, Page 37, Last paragraph.** The text states “It should be noted that the ERA is not part of the RI/FS for the site and the detected constituents identified during the ERA are considered off-site for the purposes of this RI...” This text is not accurate. The site boundary is being defined as the "top of the bank." Clearly, the contaminants associated with

the "Bank work" extended beyond the top of the bank, onto the site in several areas. As such, the report should more accurately reflect that some of the ERA work extended onto the site and did not remove all contaminated material.

9. **Section 5.2.2.2, Page 46, Paragraph 1.** The text states that verbal approval was given by SulTRAC prior to sampling. Although it is just a matter of semantics, the text should be revised to state that SulTRAC "concurred" with the final sampling locations as EPA has final approval.
10. **Section 5.2.2.2, Page 47, "Sampling Program 1"**. The bullet items listed under this heading should all be written in the past tense, as this work already has been completed.
11. **Section 5.2.2.2.1, Page 48, Bullet 3.** The text states that "Paper residuals were not observed in SB-101 or SB-103." The next sentence states that "Limited paper residuals were observed in SB-101 from 0.2 to 1-foot bgs (mixed with clay fill)." The text must be revised to resolve this inconsistency.
12. **Section 5.2.2.2.4, Page 53, Bullet 1.** The text states soil borings SB-324 and SB-326 could not be completed due to refusal; therefore, no samples were collected from these locations. The text should be revised to discuss whether any attempt occurred to move the borings to alternate locations in order to collect the proposed samples.
13. **Section 5.2.2.2.4, Page 52, Paragraph 3.** The text states that in Area 3A, test pits were installed to depths between 7 and 10 feet bgs. The approved Phase II RI work plan listed the completion depths of the test pits at 10 feet bgs. Similar to explaining why some borings were terminated early due to refusal, the text should explain why some test pits were terminated at depths less than 10 feet bgs.
14. **Section 5.2.2.2.5, Page 53, Paragraph 2.** The text states that in Area 3B, test pits were installed to depths between 5 and 10 feet bgs. The approved Phase II RI work plan listed the completion depths of the test pits at 10 feet bgs. Similar to explaining why some borings

were terminated early due to refusal, the text should explain why some test pits were terminated at depths less than 10 feet bgs.

15. **Section 5.2.2.2.6, Page 54, Paragraph 1.** The text states that in Area 3C, test pits were installed to depths between 6 and 10 feet bgs. The approved Phase II RI work plan listed the completion depths of the test pits at 10 feet bgs. Similar to explaining why some borings were terminated early due to refusal, the text should explain why some test pits were terminated at depths less than 10 feet bgs.
16. **Section 5.3, Page 61.** The text states “Summary of historical soil and groundwater data from the previous investigation, along with data [sic] from the RI investigations are presented in Appendices. Figures...present the associated sampling locations.” The report needs to do a better job of presenting a summary of all the data for the site as opposed to sending the reader to the Appendices. Tables should summarize the data similar to Section 5.3.1, but the criteria and exceedances should be provided. Additionally, for PCBs, aquatic sediment criteria have been established which may be appropriate for screening purposes (an example being that PCB results for soil/sediments near the river are more appropriately compared to criteria such as 0.33 ppm as opposed to 4 ppm). Also, some attempt should be made to graphically present sample results, an example being the RI report for OU1 of the river which was cooperatively authored by MDEQ with EPA input.

Visual presence of residuals have long been used as an indicator at the OUs for the site. The report indicates that PCB is not a constituent of concern (COC) in Area 1 of the site, despite the fact that a properly documented remediation of this area was never performed. Such lagoons were major sources of PCBs to the river and are understood to be areas of concern at other Operable Units for the site. In addition, later sections of the report contradict the description of PCB results. More discussion on this topic is needed in the report.
17. **Section 5.3, Page 62, Paragraph 3.** The text states that pre-RI and RI data were evaluated qualitatively and quantitatively to evaluate potential sources of impacts. The text goes on to discuss application of Part 201 criteria as screening criteria, and refers to the site-specific risk

assessment approach discussed in Section 8.0. As discussed in Specific Comment 1, the text should include a brief discussion of the usability of pre-RI data for risk assessment purposes.

18. **Section 5.4.8, Page 150, Paragraph 5.** The text states that “.... groundwater in the downgradient direction of the coal tunnel did not exhibit impacts from petroleum products and no free product was observed in the associated monitoring well.” Figures 2.12 and 2.13 show groundwater flow patterns and include wells MW-2 and MW-19 in proximity to the coal tunnel area. Based on the figures, neither well is positioned in an ideal downgradient direction from the coal tunnel. The text should be revised to discuss the uncertain significance of results from these wells, given the expected groundwater flow path.
19. **Section 8.1.2.3.** The chemicals of potential concern (COPCs) in the report must be expanded for all media to include the complete list of constituents identified above criteria and PCBs. Furthermore, the COPCs should not be defined exclusive to the specific “areas” that they happen to be identified in, but rather there should be site COPCs. For example, for groundwater COPCs for this site include antimony, aluminum, arsenic, benzoperylene, bis(2-ethylhexyl)phthalate, cadmium, chromium, copper, cyanide, iron, lead, manganese, mercury, selenium, vanadium, and zinc.
20. **Section 9.1.4.** Second to last sentence should indicate that “Hydrophobic compounds will likely leave solution and become bound to organic matter or animal tissue.”
21. **Section 10.1.2, Page 248, Paragraph 1.** The text states that construction activities may also result in disturbances of contaminants in the various media. The text should be revised to also include the possibility of transport of contaminants in the subsurface to the ground surface as a result of excavation and earthwork activities.
22. **Section 10.1.3, Page 248, Paragraph 5.** The text summarizes media with contaminants posing a cumulative risk exceeding 1E-04 and hazard index of 1. The text in all relevant sections should be revised to use 1E-06 as the point of departure for evaluating carcinogenic risk. This is consistent with the proposed redevelopment plan shown on Figure 8.1 that includes future residential land use in some areas.

23. **Section 10.1.3, Page 249, Paragraph 1.** The text states that site-specific background soil samples could be collected to enable evaluation of statistically based background concentrations. Section 10.2.1 (data limitations and recommendations for future work) should be revised to include a discussion of all data gaps and of needed additional investigation activities to complete the RI and move into the FS phase of work (for example, collecting background samples, further evaluating groundwater downgradient of the coal tunnel area, and further evaluating and refining contaminants of potential ecological concern (COPEC) in ecological risk assessment Step 3).
24. **Section 10.1.3, Page 251, “Area 3”.** The text summarizes the human health risk assessment for Area 3. Because the text previously discussed Area 3 by various subareas, the text should be revised to state whether this summary applies to all of Area 3 or whether human health risks differ within various sub areas (Areas 3A, 3B, 3C, 3D, and 3E). This comment also applies to the ecological risk assessment summary presented in Section 10.1.4, Page 253, Paragraph 5.
25. **Section 10.1.4, Page 253, Paragraph 4.** The last sentence in this paragraph refers to Figure 9.2. According to the figures included in the RI and the report table of contents, Figure 9.2 does not exist—apparently, the correct citation should be to Figure 8.1. If the text is referring to a figure in the ecological risk assessment presented in Appendix J, the text should be revised to clarify this. This comment also applies to the text in Paragraph 0 on Page 254.
26. **Section 10.1.4, Page 254, Paragraph 2.** The text discusses Step 3 (problem formulation) of the screening-level ecological risk assessment (SLERA). The text implies that based on the results of the SLERA, the baseline ecological risk assessment will move forward to include (1) refining COPECs, (2) considering site-specific background concentrations, and (3) using food chain models to evaluate risks to upper trophic level receptors. The text should be revised to discuss when and how these steps will occur (also see specific comment 16).
27. **Section 10.2.1.1, Page 254.** The text states that “PCBs...were detected in soil samples in exceedance of the Part 201 criteria...in Area 1.” This section of the report contradicts the

information presented in earlier portions of the report. The nature of PCB impact at the site needs to be described in the report.

28. **Appendices A, G, and H.** The reviewers found it very difficult to correlate the following: (1) overall data summary in Appendix A, which follows sample identification order; (2) the analytical reports in Appendix G, which follow the sample collection date (except for Synthetic Precipitation Leaching Procedure [SPLP] reports, which follow no apparent order); and (3) the data validation memoranda in Appendix H, which are separate documents for each area studied. Some sort of cross-index, perhaps in the form of a spreadsheet, would be very useful and could be placed, with an explanatory note, at the start of Appendix G.
29. **Appendix G, Laboratory Report “056394 CRA SDG 05-07C K1000570 Exp”.** The file for this report has been damaged and could not be opened. A usable version should be located and placed in the appendix.
30. **Appendix H, General.** It would be very useful to begin this appendix with a general summary, emphasizing the problems with the data. A fuller version of the “Data Quality Summary Reports” and the “Usability Assessment” from Worksheet Nos. 33 and 37, respectively, of the QAPP may be appropriate for that purpose.
31. **Appendix H.** Many VOC results were rejected because initial and/or continuing calibrations had a relative response factor (RRF) less than 0.05. This accords with the 1999 edition of the National Functional Guidelines (NFG), cited in Worksheet No. 36 of the QAPP. However, more recent editions of the NFG (dating from 2005 and 2007, as well as the current edition of 2008), include “Table 15. Volatile Compounds Exhibiting Poor Response” and specify that those compounds will not be qualified unless their RRFs are less than 0.01. All of the frequently rejected compounds—acetone, 2-butanone, 4-methyl-2-pentanone, 2-hexanone, and 1,2-dibromo-3-chloropropane—are listed in that Table 15, and have RRFs equal to or exceeding 0.01 in all cases discussed in the data validation memoranda within this appendix. Consideration should be given to modifying the data validation memoranda and data tables to reflect the current guidance from EPA.

32. **Appendix H.** Many of the acidic semivolatile organic compound (SVOC) results were rejected due to very low recoveries (less than 10 percent) of one or more of the four acidic surrogates used by the laboratory in the analysis. The narratives in the laboratory reports note that many samples subjected to SPLP extraction increased the pH of the extraction fluid from 4.2 to about 10 during the extraction. The alkalinity of the soil would cause severe matrix interference with extraction of the acidic SVOC, as reflected in the surrogate recoveries. This matrix interference should be discussed, along with its implications for data completeness and usability.
33. **Appendix H.** Many PCB analytical results were analyzed at a dilution, had irregular surrogate recoveries, or both. The laboratory reports noted that these phenomena were apparently due to matrix interference, especially in some samples with an “oily” appearance or a third phase in the extraction process. This interference should be discussed, along with its implications for data completeness and usability.